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MOTIVATING SIGNAGE PROMPTS SAFETY BELT USE AMONG DRIVERS EXITING SENIOR COMMUNITIES

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Senior drivers are vulnerable to automobile crashes and subsequent injury and death. Safety belts reduce health risks associated with auto crashes. Therefore, it is important to encourage senior drivers to wear safety belts while driving. Using an AB design, replicated five times, we evaluated the short- and long-term effects of a sign with the message "BUCKLE UP, STAY SAFE" attached to a stop sign at the exits of five different senior communities. Safety belt use was stable during two pretreatment assessments averaged across the five sites and 250 drivers (72% and 68% usage), but significantly increased following installation of these signs (94% usage). Six months after installation of the signs, the effect persisted (88% usage). Use of such signs may be a cost-effective way of promoting safety belt use.

DESCRIPTORS: safety belts, geriatrics, prompts, driving, risk prevention

Automobile crashes per miles driven and their related mortality rates steadily increase beyond the age of 55. Death due to automobile accidents is the leading cause of accidental death among individuals between the ages of 65 and 74. Injuries, hospitalizations, and deaths are significantly fewer among drivers who wear safety belts (Henry et al., 1996). Therefore, it is important to encourage senior drivers to wear safety belts. There have been many behavioral strategies used to encourage safety belt use (Geller, 1988), but prompting with road signs is one of the most cost effective. Studies have demonstrated modest benefits of road signs used to prompt safety belt use (e.g., Malenfant, Wells, Van Houten, & Williams, 1996). The modest effect size of signs may occur, in part, because signs primarily carry only informational and not motivational value. In addition, there are no studies on the benefits of using signs to specifically prompt safety belt use among the senior community.

A recent study investigating alcohol intoxication and driving safety among middle-aged and senior drivers (Quillian, Cox, Kovatchev, & Phillips, 1999) reported that both age groups were equally likely not to drive when intoxicated, but for different reasons. Middle-aged drivers were concerned about legal consequences, whereas senior drivers were motivated by fear of physical injury. Given this, we recently demonstrated that senior drivers were more likely to buckle their safety belts when they saw a sign saying "BUCKLE UP, AVOID HOSPITALS" with a picture depicting surgery, and younger drivers were more likely to buckle their safety belts when seeing a sign that read, "BUCKLE UP, AVOID TICKETS" with a picture of a police officer (Cox & Cox, 1999). We hypothesized that signs outside of senior communities, which emphasized physical safety, would be effective at encouraging safety belt use.

METHOD

Employing an AB design, replicated five times, we monitored two sets of 25 drivers

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(Pre 1 and Pre 2) exiting each of five different senior communities (250 drivers) before installing a sign. We observed 1 week after installing the signs (125 drivers), and once again at a 6-month follow-up (125 drivers). Sign installation and data collection were staggered to control for history factors, so that baseline data were obtained at Centers A and B on December 23, 1998, January 6, 1999 for Center C, January 18, 1999 for Center D, and January 29, 1999 for Center E. Pre 1, Pre 2, and postinstallation data collection were separated by approximately 1 week. Center A was a senior activity center, and Centers B through E were independent-living residential senior communities. Center members were not informed about the installation of the signs or about any data-collection efforts.

Two raters sat at the community exits, off the road, on the opposite side of the street from the sign. Raters recorded whether drivers (a) came buckled to the intersection, (b) got buckled at the intersection, or (c) left the intersection with their safety belt buckled (a and b). Safety belt usage was determined based on the visible presence of a shoulder strap across the driver's chest. Interobserver agreement on whether the driver was buckled or got buckled at the exit was 100%.

The positive health-related message, "BUCKLE UP, STAY SAFE," was placed on permanent, aluminum vinyl-lettered signs (12 in. by 18 in.). To encourage compliance, signs were placed under stop signs, which legally required compliance.

RESULTS AND DISCUSSION

Figure 1 shows that safety belt usage was stable during baseline. There was no change in percentage of drivers who left the intersection buckled from Pre 1 (72%) to Pre 2 (68%, Wilcox sign rank test, $p = .44$), which was highly stable across the two samplings, for all five settings ($r = .96$). However, there was a consistent (across five sites) increase in percentage of drivers who left the intersection buckled following the installation of signs, with postinstallation safety belt use averaging 94% ($p < .008$). During both Pre 1 and 2, no drivers got buckled at the stop signs, but at postinstallation, 86% of those who approached the sign unbuckled got buckled at the stop sign (gray vertical line, $p = .02$).

At the 6-month follow-up, 88% of the drivers left the intersections with their safety belts buckled. This was significantly different from baseline ($p = .01$), Significantly more drivers got buckled at follow-up compared to baseline ($p = .03$). A trend of more drivers coming buckled to the sign at follow-up compared to baseline ($p = .09$) suggests a possible learning effect.

These data replicate our earlier observations that a sign prompting use of safety belts, with a motivating message that emphasizes physical well being, is effective in promoting safety belt use among older drivers (Cox & Cox, 1999). Given the fact that none of the 250 drivers during baseline buckled their safety belts at the intersections during Pre 1 and Pre 2 and that 86% of the unbuckled drivers did buckle their safety belts after installation of the sign, it appears that this behavior can be attributed to the newly posted signs. The effects of the signs appear to be durable at four of the five centers, because the increased safety belt usage seen at postinstallation continued at the 6-month follow-up. Considering that these signs are a one-time investment and are available to all people exiting these communities at any time of day, such an intervention appears to be very cost effective.

Conceptually, it was hypothesized that a positive, health-related message under a stop sign that requires compliance at the beginning of a trip (exit of a community) would optimize compliance. However, because we did not manipulate location of the

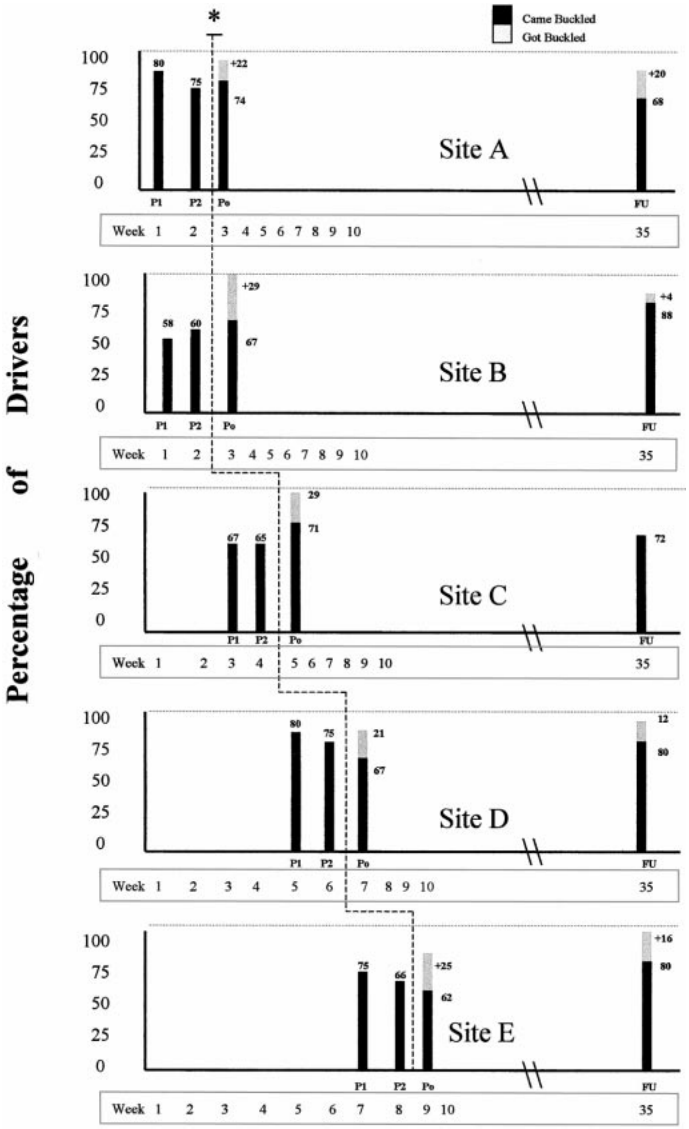

Figure 1. Safety belt usage at Pre 1 (P1), Pre 2 (P2), postinstallation (Po), and follow-up (FU), with data collection and sign installation staggered. Black bars represent percentage of drivers buckled when approaching the exit, and gray bars represent drivers who got buckled at the intersection.

sign, message on the sign, or presence of the sign, the exact reason for effectiveness cannot be determined. The placement of the sign may have contributed to its efficacy. Placing a sign at the exit of a community may catch drivers who are less preoccupied with the process of driving and reaching their destination, possibly making it easier to respond to such a sign. Having such a sign stand alone, rather than in conjunction with a stop sign legally requiring compliance, may not have been as effective. In this context, it may be that any message on a sign would have been effective. Future research could manipulate these variables, employ more data sampling, manipulate the presence of the sign, and assess the sign's impact on passengers.

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